

REMARKS

The undersigned attorney wishes to thank the Examiner for the courtesies extended during the Interview. During the Interview, the Examiner agreed that the amendments to claim 57 set forth above would place the claim in condition for allowance. Also, amendments to the remaining claims were discussed that would likely place them in condition for allowance.

For purposes of clarity, the specification has been amended to replace the section heading "Detailed Description of the Drawings" on page 8 with --Detailed Description of the Invention--.

Claims 24-26, 28, 29, 34-37, 39, 45, 50, 60, 62, 64-72, 74, 75 and 77-80 have been cancelled, without prejudice.

Claim 31 has been amended to depend from claims 22, 23 and 57. Support for this amendment is found in original claim 31 and in the specification at, for example, page 6, ¶ [0019]. See, *In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01 (o) and (l).

Claim 33 has been amended to recite that the --expression vector is a bacterial expression vector--. Support for this amendment is found in original claim 34 and in the specification at, for example, pages 6-7, ¶¶ [0019]-[0020]. *Id.*

For purposes of clarity, claims 38, 40, 42-44, 46-49, and 76 have been amended to replace the term "recombinant microorganism" with --host cell--. Support for this amendment is found in the specification at, for example, pages 6-7, ¶¶ [0019]-[0020].

Claim 40 has further been amended to depend from claims 22, 23 and 57. Support for this amendment is found in original claim 40 and in the specification at, for example, pages 6-7, ¶¶ [0019]-[0020]. *Id.*

For the purposes of clarity, claims 42 and 47 have further been amended to replace the term "bacteria" with --bacterium--. This amendment is formal in nature and does not narrow the scope of the claims in any manner.

Claim 43 has further been amended to depend from claim 40. Support for this amendment is found in original claims 42 and 43. *Id.*

For purposes of clarity, claim 46 has further been amended to insert the article --a-- in front of, and to insert the term --complex-- after, the term "cytochrome c oxidase." This amendment is formal in nature and does not narrow the scope of the claim in any manner.

Claim 57 has been amended to replace the article "the" with the article --a-- and to specify *Gluconobacter oxydans* strain --DSM 4025--. Support for this amendment is found in the specification at, for example, pages 8-9, ¶ [0033] and pages 17-18, ¶ [0061].

Claim 61 has been amended for the purposes of clarity to insert the phrase --as determined--, to replace the term "displays" with the term --has--, and to replace the phrase "showing an *aa3* type cytochrome c oxidase" with the phrase --with a--. This amendment is formal in nature and does not narrow the scope of the claim in any manner.

Claim 63 has been amended to depend from claim 57. Support for this amendment is found in the specification at, for example, pages 4-5, ¶ [0013].

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Claims 73 and 76 have been amended to replace the phrase "at least one" with the term --a-- and to remove their dependence from cancelled claims 65 and 69. Support for these amendments is found in original claim 31 and in the specification at, for example, pages 8-9, ¶ [0033]. *Id.*

Claim 81 has been added. Support for this claim is found in the specification at, for example, pages 6-7, ¶¶ [0019]-[0020].

It is submitted that no new matter has been introduced by the foregoing amendments. Approval and entry of the amendments is respectfully solicited.

Claim Objections

Claims 34-37, 42, 47 and 61 were objected to for containing "informalities." (Paper No. 9 at 2-3). In making the objection the Examiner asserted that "it appears that 'a bacterium'/'the bacterium' not 'a bacteria'/'the bacteria' is intended" and that "in claim 61, line 5, the words ', as determined' before 'by SDS-PAGE' are missing." (*Id.*).

Claims 34-37 have been cancelled, without prejudice. Accordingly, the rejection with regards to these claims is rendered moot and should be withdrawn.

With a view towards furthering prosecution, claims 42, 47 and 61 have been amended, as set forth, above to correct the informalities noted by the Examiner. Accordingly, it is respectfully submitted that the objection is rendered moot and should be withdrawn.

§112, Second Paragraph Rejections

Claims 24-26, 28, 29, 31, 33-40, 42-50, 57 and 60-80 were rejected under 35 USC §112, second paragraph. (Paper No. 9 at 10). In making the rejection, the Examiner asserted the following:

Claim 24 recites *Gluconobacter oxydans* cytochrome c oxidase core subunit II. The specification does not define what features render a polypeptide a core subunit II. Claim 25 recites *Gluconobacter oxydans* cytochrome c oxidase core subunit I. It is unclear which polypeptides other than the polypeptide of SEQ. ID NO:2 are encompassed by the term. (*Id.*).

The Examiner further asserted the following:

Claims 31, 33-37 are confusing as reciting "an expression vector suitable for in a specific organism".... Claim 43 is confusing as reciting as "a recombinant microorganism" what appears to be a host cell. Claim 44 is unclear because it is not defined how the microorganism "obtained from *Gluconobacter oxydans* DSM 4025" is different from the *Gluconobacter oxydans* DSM 4025 itself. Claim 61 is unclear because "aa3-type cytochrome oxidase cytochrome c oxidase" is not defined in terms how it is different from other types. The recitation of peak at 605 nm appears to be sufficient. With regard to claim 62, it is unclear whether it is intended to recite a recombinant core subunit. Claim 63 is incomplete as reciting "SEQ ID NO:" without a number. (*Id.*) (emphasis in original).

Claims 24-26, 28, 29, 34-37, 39, 45, 50, 60, 62, 64-72, 74, 75 and 77-80, have been cancelled, without prejudice. Accordingly, the rejection with regards to these claims is rendered moot and should be withdrawn.

Claims 31, 33, 43, 44 and 61 have been amended, as set forth above, to remove the objected to language. Claim 43 has further been amended to recite "host cell." Accordingly, it is respectfully submitted that the rejection with regards to these

claims (and those claims that depend therefrom) is rendered moot and should be withdrawn.

We note that claim 63 was previously amended to recite "SEQ ID NO: 4." Submission Under 37 CFR §1.114: Response To Office Action Including Amendment dated November 11, 2003, at page 18. Accordingly, we respectfully submit that the rejection with regards to claim 63 was issued in error and should be withdrawn.

§112, First Paragraph Rejections

1. Written Description

Claims 24-26, 28, 29, 31, 33-40, 42-50, 57 and 60-80 were rejected under 35 USC §112, first paragraph. (Paper No. 9 at 3).^{1/} In making the rejection, the Examiner asserted that "[f]ragments consisting of 44, 38 or 29 amino acids, respectively, are highly unlikely to convey a cytochrome c oxidase activity and the specification does not define the remaining structural features necessary for members of the genus to be selected." (*Id.* at 4). However, the Examiner acknowledged that "[t]his is different from a DNA encoding SEQ ID NO:2 that is a full length sequence of COI and as such conveys cytochrome c oxidase activity." (*Id.*).

Claims 24-26, 28, 29, 34-37, 39, 45, 50, 60, 62, 64-72, 74, 75 and 77-80, have been cancelled, without prejudice. Accordingly, the rejection with regards to these claims is rendered moot and should be withdrawn.

¹ We note that the Examiner acknowledged during the Interview that the apparent rejection of claims "24-50, 58, 59 and 64-80" was issued by mistake. Accordingly, as instructed by the Examiner, we will not address this portion of the rejection.

With a view towards furthering prosecution and as recommended by the Examiner during the Interview, claims 31, 33, 40 and 63 have been amended to depend from claims that recite either SEQ ID NO: 1 (encodes full length CO I) or SEQ ID NO: 2 (full length CO I), and claim 57 has been amended to specify *Gluconobacter oxydans* strain DSM 4025. Accordingly, it is respectfully submitted that the rejection of the remaining claims, which are pending and under examination, is rendered moot and should be withdrawn.

2. Enablement

Claims 24-26, 28, 29, 31, 33-40, 42-50, 57 and 60-80 were rejected under 35 USC §112, first paragraph. (Paper No. 9 at 5-6). In making the rejection, the Examiner asserted the following:

the specification... does not reasonably provide enablement for a DNA comprising DNA fragment [sic] encoding SEQ ID NO: 4, 6 or 8 or a sequence that is 85% identical thereto or a DNA that hybridizes thereto under highly stringent conditions and that conveys cytochrome c oxidase activity when present with two other core subunits of cytochrome c oxidase from *Gluconobacter oxydans* DSM 4025 or to any other cytochrome c oxidase. It does not reasonably provide enablement for a DNA fragment encoding a sequence that is 85% identical to SEQ ID NO: 2 or a DNA that hybridizes thereto under highly stringent conditions and encodes a core subunit that conveys cytochrome c oxidase activity when present to any cytochrome c oxidase **other than** from *Gluconobacter oxydans* DSM 4025 of the instant invention. (*Id.*) (underlining in original; bold emphasis added).

The Examiner acknowledged, however, that the specification is "enabling for a DNA fragment encoding SEQ ID NO: 2, 4, 6 or 8." (*Id.* at 6).

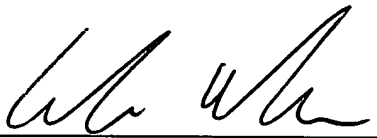
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Claims 24-26, 28, 29, 34-37, 39, 45, 50, 60, 62, 64-72, 74, 75 and 77-80, have been cancelled, without prejudice. Accordingly, the rejection with regards to these claims is rendered moot and should be withdrawn.

With a view towards furthering prosecution and as recommended by the Examiner during the Interview, claims 31, 33, 40 and 63 have been amended to depend from claims that recite either SEQ ID NO: 1 (encodes full length CO I) or SEQ ID NO: 2 (full length CO I), and claim 57 has been amended to specify *Gluconobacter oxydans* strain DSM 4025. Accordingly, it is respectfully submitted that the rejection of the remaining claims, which are pending and under examination, is rendered moot and should be withdrawn.

For the reasons set forth above and in accordance with the agreement reached with the Examiner during the Interview, favorable action on the merits, including entry of the amendments, withdrawal of the rejections and objections, and allowance of all the claims, respectfully are requested. If the Examiner has any questions regarding this paper, please contact the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, Alexandria, VA 22313-1450, on June 29, 2004.


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